Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

PROBLEMS.

15. Proposed by A. L. FOOTE, No. 80, Broad St., New York.

A person 30 years of age has an annuity for 10 years, the present worth of which is $1000, provided he lives but ten years; for, if he dies, the annuity ceases. What is the annuity worth, on the assumption that 75 out of every 4385 persons die annually, between the ages 30 and 40 years?

16. Proposed by H. W. DRAUGHON, Clinton, Louisiana.

The probability that A will speak the truth is twice the probability that B will, in an independent statement, speak the truth; but, if A exerts his influence, the probability is that B will agree with him in any statement. What is the probability of the truth of their concurrent testimony, the chances being equal that A may or may not be interested in the matter?

17. Proposed by F. P. MATZ, M. Sc., Ph. D., Professor of Mathematics and Astronomy in New Windsor College, New Windsor, Maryland.

Find the average area of the circle which is the locus of the middle points of all chords passing through a point taken at random in the surface of a given circle.

Solutions to these problems should be received on or before November 1st.

◆

MISCELLANEOUS.

Conducted by J. M. COLAW, Monterey, Va. All contributions to this department should be sent to him.

SOLUTIONS TO PROBLEMS.

10. Probosed by SAMUEL HART WRIGHT, M. D., M. A., Ph. D., Penn Yan, Yates County, N. Y.

A small cloud in the S. E. and altitude 70°, was soon after N. 60°E with an altitude of 30°. In what direction was the wind blowing, the track of the cloud being the arc of a great circle?

I. Solution by F. P. MATZ, M. Sc., Ph. D., Professor of Mathematics and Astronomy in New Windsor College, New Windsor, Maryland.

Let Z represent the zenith of the observer, C_1 and C_2 the positions of the cloud, and ZD the perpendicular C_1C_2. The $\angle NZW$ represents the direction of the wind with respect to the observer and his zentith. Since $C_1Z=20^\circ$, $C_2Z=60^\circ$, $\angle C_1ZC_2=75^\circ$, $\angle C_1ZS=45^\circ$, and $\angle C_2ZN=60^\circ$, the spherical triangle C_1ZC_2 gives $\angle C_1C_2Z=\phi=\tan^{-1}\left(\frac{\cos 20^\circ}{\cos 40^\circ}\cot 37\tfrac{1}{2}^\circ\right)$